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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/501,700 | 07/16/2004 | Tobias Schneider | 112740-00963 | 5094 |
| 29177 | 7590 | 11/08/2007 | | |
| BELL, BOYD & LLOYD, LLP P.O. BOX 1135 CHICAGO, IL 60690 | | | EXAMINER SAINT CYR, LEONARD | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|-------------------------------|-----------------------------------|--|
| Office Action Summary | Application No. 10/501,700 | Applicant(s) SCHNEIDER, TOBIAS | |
| | Examiner Leonard Saint-Cyr | Art Unit 2626 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12 - 29 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 12-29 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Specification

1. The abstract of the disclosure does not commence on a separate sheet in accordance with 37 CFR 1.52(b)(4). A new abstract of the disclosure is required and must be presented on a separate sheet, apart from any other text.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 12, 13, 20, 21, 28, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over D'hoore et al., (US Patent 6,085,160) in view of Riis et al., (US PAP 2003/0050779).

As per claims 12, and 22, D'hoore et al., teach a method and apparatus for automated language recognition of words from different languages comprising:

(a) loading a phoneme set associated with a language specified as a mother tongue into a mother tongue language recognizer ("subword units in a first language"; col.2, lines 7 – 14);

(b) determining the phonetic transcripts of each word for N various languages not specified as the mother tongue to obtain N first phoneme sequences for each word

corresponding to N first pronunciation variants ("generate several phonetic transcriptions"; col.8, lines 13 – 15);

(c) calculating a phoneme map by mapping the first phoneme sequences of each of said N languages to a relevant phoneme set of the mother tongue ("uses all the transcriptions in parallel...for recognizing proper names in an application that will be used by a variety of speakers whose language is not known"; col.8, lines 13 – 19).

However, D'hoore et al., do not specifically teach determining N second phoneme sequences corresponding to N second pronunciation variants from said phoneme map for each word; and processing said N second phoneme sequences with the phoneme set associated with the language specified as a mother tongue to identify matching or similar words.

Riis et al., teach capturing both inter- and intra-language pronunciation variations which is ideal for multilingual speaker independent speech recognition systems; generating pronunciations in response to said sequences of multilingual phoneme symbols, and comparing said pronunciations with the acoustic input in order to find a match (Abstract, lines 7 – 10; paragraph 15, lines 8 – 11).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to generate inter- and intra-language pronunciation variations as taught by Riis et al., in D'hoore et al., because that would held better identify the language of the inputted word, by finding the best match among pronunciations of different languages.

As per claim 13, D'hoore further disclose adding the N second phoneme sequences for each word in a language recognition vocabulary located in the mother tongue language recognizer ("subword units in a first language"; col.2, lines 7 – 14; col.1, lines 3 - 7).

As per claims 20, 21, 28, and 29, Riis et al., further disclose determining the phonetic transcripts of each word for N various languages not specified as the mother tongue is performed by at least one neural network; processing said N second phoneme sequences with the phoneme set associated with the language specified as a mother tongue is performed via a Hidden Markov Model (paragraph 53, lines 1 – 3).

4. Claims 14 – 16, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over D'hoore et al., (US Patent 6,085,160) in view of Riis et al., (US PAP 2003/0050779), and further in view of Bub et al., (US Patent 6,460,017).

As per claims 14, and 23, D'hoore et al., in view of Riis et al., do not specifically teach processing the N second phoneme sequences to determine distances to the N second pronunciation variants.

Bub et al., teach measuring the distance or determining the similarity of two phonemes models of the same sound from different languages (col.11, lines 45 – 48).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to measure the distance between phonemes as taught by

Bub et al., in D'hoore et al., in view of Riis et al., because that would held better identify the language of the inputted word.

As per claim 15, Riis et al., further disclose classifying each N second phoneme sequences ("inter- and intra-language pronunciation variations"; Abstract, lines 7 – 10).

However, D'hoore et al., in view of Riis et al., do not specifically teach identifying respective distances.

Bub et al., teach measuring the distance or determining the similarity of two phonemes models of the same sound from different languages (col.11, lines 45 – 48).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to measure the distance between phonemes as taught by Bub et al., in D'hoore et al., in view of Riis et al., because that would held better identify the language of the inputted word.

As per claim 16, Bub et al., further disclose eliminating any N second phoneme sequences that do not meet or exceed a predetermined threshold ("distance threshold"; col.12, lines 51, and 52).

5. Claims 17, 24, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over D'hoore et al., (US Patent 6,085,160) in view of Riis et al., (US PAP 2003/0050779), further in view of Bub et al., (US Patent 6,460,017), and further in view of Brill et al., (US Patent 7,047,493).

As per claims 17, 24, D'hoore et al., in view of Riis et al., and further in view of Bub et al., do not specifically teach that the distances are Levenshtein distances.

Brill et al., teach using Levenshtein distance (col.3, line 31).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use Levenshtein distance as taught by Brill et al., in D'hoore et al., in view of Riis et al., and further in view of Bub et al., because that would held better identify the language of the inputted word.

As per claim 25, Bub et al., further disclose eliminating any N second phoneme sequences that do not meet or exceed a predetermined threshold ("distance threshold"; col.12, lines 51, and 52).

6. Claims 18, 19, 26, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over D'hoore et al., (US Patent 6,085,160) in view of Riis et al., (US PAP 2003/0050779), and further in view of Harengel et al., (US PAP 2004/0039570).

As per claims 18, 19, 26, and 27, D'hoore et al., in view of Riis et al., do not specifically teach determining the probabilities that each word for N various languages not specified as the mother tongue belong to a specified set of languages, said step of determining probabilities occurring before step (a); and eliminating languages from said specified set that do not meet or exceed a predetermined threshold.

Harengel et al., teach if the probability coefficient for the assignment of a word to at least one language exceeds the threshold value, the grapheme-phoneme assignment

which corresponds to the respective word is supplemented in the pronunciation lexicon (paragraph 10, lines 8 – 13).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to determine a probability coefficient of a word as taught by Harengel et al., in D'hoore et al., in view of Riis et al., because that would held better identify the language of the inputted word, by discarding languages with low probability coefficient value.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Bordeaux (US Patent 5,758,023) teaches multi-language speech recognition system.

Niedermair (US PAP 2004/0098259) teaches a method for recognition verbal utterances by a non-mother tongue speaker in a speech processing system.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonard Saint-Cyr whose telephone number is (571) 272- 4247. The examiner can normally be reached on Mon- Friday.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on (571) 272-7602. The fax phone

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number for the organization where this application or proceeding is assigned is (571)-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

11/05/07


RICHEMOND DORVIL
SUPERVISORY PATENT EXAMINER